

TREND STUDY 1-7-96

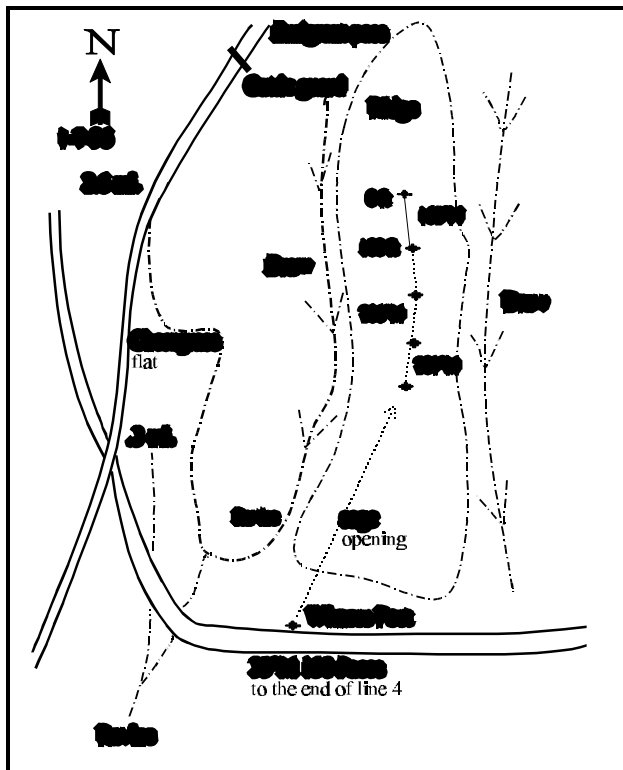
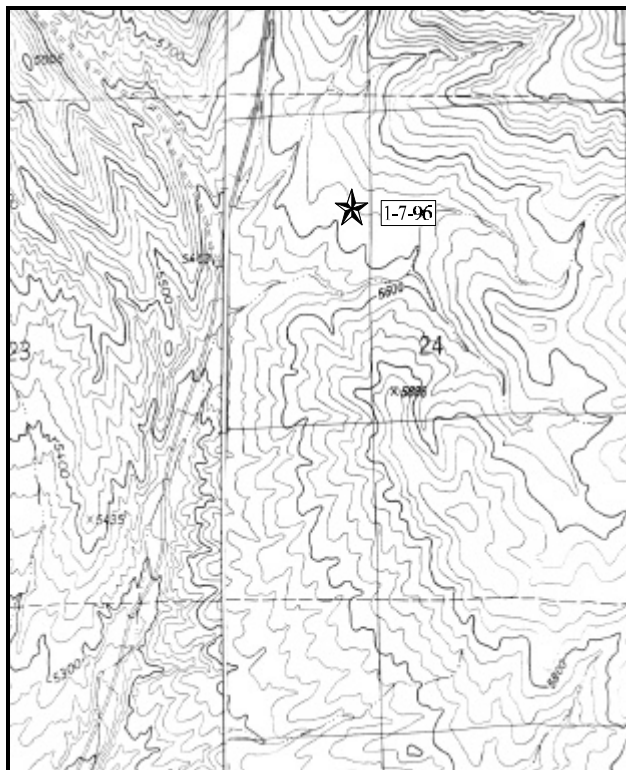
Study site name: South Side Emigrant Pass. Range type: Black sagebrush.

Compass bearing: frequency baseline 162 degrees.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) Line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From the cattleguard at the summit of Emigrant Pass Road, travel 2.6 miles southwest to a cheatgrass flat on the east side of the road. Turn left. Cross the flat and the wash, proceeding 0.3 miles to the mouth of the first ravine on the north side of the canyon to a witness post. Stop here. Take a bearing of 33 degrees magnetic and walk 150 paces to the stake that marks the end of line four. The 0-foot stake is marked with a red browse tag, #7911. The baseline runs at a bearing of 162 degrees magnetic. The three-hundred foot baseline runs 206 degrees magnetic. The four-hundred foot baseline runs 201 degrees magnetic.



Map Name: Bovine, Utah and Emigrant Pass, Utah Diagrammatic Sketch

Township 9N Range 17W, Section 24, UTM: 2-70-900E 45-96-856N

DISCUSSION

Trend Study No. 1-7

This study samples a black sagebrush ridge within critical deer winter range on the south side of Emigrant Pass. The study site slopes gently (10%) to the southwest. Shallow draws containing a few junipers are located to either side of the study area. Elevation is approximately 5,610 feet. The area is also used as winter sheep range as part of the White Lakes allotment. This allotment is grazed from December 1 to March 31.

Soil is extremely rocky on the surface and appears "armored" with extensive areas of erosion pavement. The soil is shallow with an estimated effective root depth of 10 inches. Litter cover is scarce and vegetative cover is limited almost exclusively to black sagebrush crowns. Pedestaling of sagebrush plants is common, but not extreme.

Black sagebrush is the obvious key species. Although a variety of other shrubs can be found, they are either so low in numbers, poor forage producers, or are so poor in palatability that they are unsatisfactory for management purposes. The black sagebrush population is stable or even expanding which, although heavily hedged, appears to turn over rather rapidly. Seedlings and young plants are numerous and percent decadency in 1996 is low (8%). Mature shrubs average less than one foot in height and tend to be evenly spaced. Most reproduction occurs under or very near existing crowns. In spite of heavy use, black sagebrush exhibits good vigor. Other associated shrub species include narrowleaf low rabbitbrush, shadscale, bud sagebrush, and green molley summer cypress. Shadscale is light to moderately hedged and in good vigor.

Herbaceous plants constitute only a small portion of the vegetative composition. The most abundant species are two low-growing forbs, Cryptantha spp. and longleaf phlox. Neither have much value as forage plants. Grasses occur infrequently and produce less than 2% cover. The most common species are Indian ricegrass, bottlebrush squirreltail, and annual cheatgrass.

1984 APPARENT TREND ASSESSMENT

Soil trend is stable to slightly down. Ongoing erosion is rapid enough to result in some pedestaling of black sagebrush plants. However, erosion is slowed by the gentle terrain and the prevalence of erosion pavement. Vegetative trend is stable but at a relatively low condition rating. Plant diversity is low and shows few signs of improvement or further degradation. The dominant black sagebrush stand, although low-growing, heavily hedged and not highly productive, appears self-sustaining.

1990 TREND ASSESSMENT

Trend for browse appears stable even after extended years of drought. The shrubs showed light to moderate hedging. Canopy cover from black sage averages about 13%. The low rabbitbrush has not increased, although the population remains dominated by young plants. There is a high frequency of forbs, but none of the native species are especially valuable as forage. Herbaceous vegetation is somewhat restricted by the extensive pavement cover on the ground surface. Some soil loss through sheet erosion is still evident. Most grasses are increasing slowly, but Indian ricegrass is increasing much faster. It has gone from a quadrat frequency of 14% up to 31% and represents the most common grass on the site.

TREND ASSESSMENT

soil - stable but in poor condition

browse - stable

herbaceous understory - improving slightly, but in poor condition

1996 TREND ASSESSMENT

Trend for soil is slightly down and in poor condition. Percent bare ground increased from 7% to 9% while litter cover declined slightly. Pavement cover declined since 1990 from 67% to 45%. Some sheet erosion is still occurring but due to the gentle terrain, it is not severe. Trend for the key browse species, black sagebrush, is up slightly. Utilization is moderate to heavy with 39% of the mature and decadent plants displaying heavy use. Vigor is good and percent decadency has declined from 29% to 8%. The proportion of young plants declined from 41% to 25% and biotic potential (number of seedlings) dropped from 26% to 3%, but there are still sufficient numbers to maintain the population. Trend for the herbaceous understory is slightly up with an increase in the sum of nested frequency for grasses and forbs. Indian ricegrass declined significantly, while the sum of nested frequency for Canada bluegrass and squirreltail increased. The dominant forbs, cryptantha and longleaf phlox, both increased significantly in their sum of nested frequency values. However, the herbaceous understory is still depleted and in poor condition.

TREND ASSESSMENT

soil - slightly down

browse - slightly up

herbaceous understory - slightly up

HERBACEOUS TRENDS --

Herd unit 01 , Study no: 7

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'84	'90	'96	'84	'90	'96	
G	Agropyron spicatum	-	2	-	-	1	-	.00
G	Bromus tectorum (a)	-	-	51	-	-	21	.13
G	Oryzopsis hymenoides	_a 26	_b 70	_b 54	14	31	27	.84
G	Poa compressa	_a 3	_{ab} 6	_b 19	2	3	9	.23
G	Sitanion hystrix	_{ab} 15	_a 9	_b 31	9	5	15	.26
Total for Grasses		44	87	155	25	40	72	1.47
F	Allium textile	5	-	3	3	-	1	.00
F	Astragalus newberryi	_a -	_a -	_b 23	-	-	10	.18
F	Astragalus utahensis	_{ab} 18	_a 23	_b 9	9	12	3	.01
F	Balsamorhiza hookeri	-	-	1	-	-	1	.00
F	Castilleja chromosa	5	-	-	2	-	-	.00
F	Caulanthus crassicaulis	_a -	_a -	_b 14	-	-	6	.06
F	Crepis acuminata	3	-	-	3	-	-	-
F	Cryptantha spp.	_a 116	_b 58	_a 92	57	28	42	.47
F	Cymopterus spp.	-	-	8	-	-	3	.01
F	Erigeron argentatus	-	2	1	-	1	1	.00
F	Erigeron spp	-	-	3	-	-	1	.03
F	Eriogonum ovalifolium	-	-	3	-	-	1	.00
F	Erigeron pumilus	-	-	3	-	-	1	.00

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover % '96
		'84	'90	'96	'84	'90	'96	
F	Gilia spp. (a)	-	-	38	-	-	16	.08
F	Haplopappus acaulis	_a 4	_b 32	_{ab} 18	2	17	7	.08
F	Malcolmia africana	-	-	5	-	-	3	.01
F	Phlox hoodii	57	43	34	29	24	16	.37
F	Phlox longifolia	_a 90	_{ab} 124	_b 133	47	56	63	.56
F	Ranunculus testiculatus (a)	-	-	2	-	-	1	.00
F	Sphaeralcea coccinea	-	2	-	-	1	-	-
F	Sphaeralcea grossulariaefolia	1	-	-	1	-	-	-
Total for Forbs		299	284	390	153	139	176	1.93

Values with different subscript letters are significantly different at $\alpha = 0.10$ (annuals excluded)

BROWSE TRENDS --

Herd unit 01 , Study no: 7

T y p e	Species	Strip Frequency '96	Average Cover % '96
B	Artemisia nova	99	17.45
B	Atriplex confertifolia	33	1.37
B	Chrysothamnus viscidiflorus stenophyllus	75	2.51
B	Kochia americana	23	.06
B	Tetradymia nuttallii	14	.30
Total for Browse		244	21.71

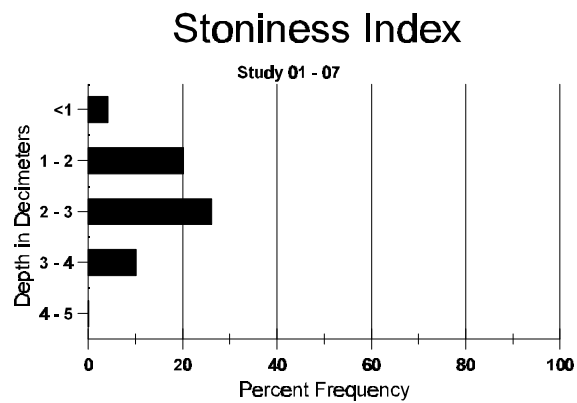
BASIC COVER --

Herd unit 01 , Study no: 7

Cover Type	Nested Frequency '96	Average Cover %		
		'84	'90	'96
Vegetation	290	3.25	9.75	25.04
Rock	263	5.75	11.00	11.69
Pavement	366	62.75	56.00	33.71
Litter	351	23.50	14.75	12.81
Cryptogams	235	1.50	1.50	2.55
Bare Ground	276	3.25	7.00	8.89

SOIL ANALYSIS DATA --
Herd Unit 01, Study no: 7

Effective rotting depth (inches)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
10.2	62.8 (9.7)	7.7	55.9	9.1	35.0	1.44	3.9	172.8	.6



PELLET GROUP FREQUENCY --
Herd unit 01 , Study no: 7

Type	Quadrat Frequency '96
Rabbit	16
Deer	17

BROWSE CHARACTERISTICS --
Herd unit 01 , Study no: 7

A G E	YR	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia nova																		
S	84	28	-	-	-	-	-	-	-	-	28	-	-	-	1866		28	
	90	38	-	-	-	-	-	-	-	-	38	-	-	-	2533		38	
	96	17	-	-	-	-	-	-	-	-	17	-	-	-	340		17	
Y	84	40	23	6	-	-	-	-	-	-	68	-	1	-	4600		69	
	90	54	1	-	4	-	-	-	-	-	59	-	-	-	3933		59	
	96	79	63	1	-	1	-	-	-	-	144	-	-	-	2880		144	
M	84	9	46	10	-	-	-	-	-	-	62	-	3	-	4333	8 11	65	
	90	35	6	-	2	-	-	-	-	-	42	-	1	-	2866	11 14	43	
	96	20	176	143	-	34	3	5	-	-	381	-	-	-	7620	9 23	381	
D	84	3	8	6	-	-	1	-	-	5	12	-	11	-	1533		23	
	90	38	-	-	5	-	-	-	-	-	41	-	-	2	2866		43	
	96	5	23	20	-	-	2	-	-	-	39	-	-	11	1000		50	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	240		12	
Total Plants/Acre (excluding Dead & Seedlings)														'84	10466	Dec:	15%	
														'90	9665		30%	
														'96	11500		9%	
Artemisia spinescens																		
Y	84	9	-	-	-	-	-	-	-	-	9	-	-	-	600		9	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	1	9	8	-	-	-	-	-	1	18	-	1	-	1266	6 8	19	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	7 13	0	
D	84	-	-	1	-	-	-	-	-	-	1	-	-	-	66		1	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Total Plants/Acre (excluding Dead & Seedlings)														'84	1932	Dec:	3%	
														'90	0		0%	
														'96	0		0%	

A G E	YR	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Atriplex confertifolia																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	5	-	-	-	-	-	-	-	-	-	-	-	-	333		5	
	96	2	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
Y	84	4	6	1	-	-	-	-	-	-	11	-	-	-	733		11	
	90	-	-	-	-	-	-	1	-	-	1	-	-	-	66		1	
	96	6	-	-	-	-	-	-	-	-	6	-	-	-	120		6	
M	84	1	8	3	1	-	-	-	-	-	13	-	-	-	866	7 10	13	
	90	5	-	-	1	-	-	-	-	-	5	-	-	1	400	10 8	6	
	96	9	7	-	8	10	4	-	-	-	38	-	-	-	760	9 15	38	
D	84	-	4	3	1	1	-	-	-	6	5	-	9	1	1000		15	
	90	16	-	-	5	-	-	-	-	-	10	-	-	11	1400		21	
	96	-	1	-	-	1	-	-	-	-	2	-	-	-	40		2	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
Total Plants/Acre (excluding Dead & Seedlings)														'84	2599	Dec:	38%	
														'90	1866		75%	
														'96	920		4%	
Chrysothamnus viscidiflorus stenophyllus																		
S	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	96	3	-	-	10	-	-	2	-	-	15	-	-	-	300		15	
Y	84	22	1	1	-	-	-	-	-	-	24	-	-	-	1600		24	
	90	21	-	-	6	-	-	-	-	-	27	-	-	-	1800		27	
	96	9	-	-	-	-	-	-	-	-	9	-	-	-	180		9	
M	84	2	5	9	-	-	-	-	-	1	17	-	-	-	1133	7 11	17	
	90	5	-	-	3	-	-	-	-	-	8	-	-	-	533	11 13	8	
	96	122	4	-	-	-	-	-	-	-	125	-	1	-	2520	8 15	126	
D	84	1	-	-	-	-	-	-	-	1	1	-	1	-	133		2	
	90	12	-	-	3	-	-	-	-	-	13	-	-	2	1000		15	
	96	18	-	-	2	-	-	-	-	-	17	-	-	3	400		20	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
Total Plants/Acre (excluding Dead & Seedlings)														'84	2866	Dec:	5%	
														'90	3333		30%	
														'96	3100		13%	
Ephedra nevadensis																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	16 19	0	
Total Plants/Acre (excluding Dead & Seedlings)														'84	0	Dec:	-	
														'90	0		-	
														'96	0		-	

A G E	YR	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Juniperus osteosperma																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Total Plants/Acre (excluding Dead & Seedlings)														'84	0	Dec:	-	
														'90	0		-	
														'96	0		-	
Kochia americana																		
S	84	-	2	1	2	-	-	-	-	-	-	5	-	-	333		5	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
Y	84	14	1	1	-	-	-	-	-	-	15	-	1	-	1066		16	
	90	6	-	-	-	-	-	-	-	-	6	-	-	-	400		6	
	96	19	-	-	-	-	-	-	-	-	19	-	-	-	380		19	
M	84	4	-	-	-	-	-	-	-	-	4	-	-	-	266	2	2	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	96	28	-	-	1	-	-	-	-	-	29	-	-	-	580	4	6	
D	84	1	1	-	-	-	1	-	-	-	1	-	1	1	200		3	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Total Plants/Acre (excluding Dead & Seedlings)														'84	1532	Dec:	13%	
														'90	400		0%	
														'96	960		0%	
Tetradymia nuttallii																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	1	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	5	-	-	-	-	-	-	-	-	5	-	-	-	333		5	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	96	1	-	-	1	-	-	-	-	-	2	-	-	-	40	16	24	
D	84	1	-	-	1	-	-	-	-	1	1	-	2	-	200		3	
	90	6	-	-	2	-	-	-	-	-	5	-	-	3	533		8	
	96	7	1	-	2	-	-	2	-	-	7	-	-	5	240		12	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	120		6	
Total Plants/Acre (excluding Dead & Seedlings)														'84	266	Dec:	75%	
														'90	866		62%	
														'96	280		86%	